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(54) Title: METHOD AND APPARATUS FOR VALIDATING CREDIT INFORMATION DURING HOME DELIVERY OF ORDER

(57) Abstract

A method and apparatus for delivering an order to a home and utilizing credit information to verify and accept payment for the order. The method and apparatus verify credit information on site at the door of a home contemporaneously with delivery of an order.

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METHOD AND APPARATUS FOR VALIDATING CREDIT INFORMATION DURING HOME DELIVERY OF ORDER

This invention relates to a method and apparatus for delivering an order to a home and utilizing credit information to verify and accept payment for the order.

In another respect, the invention relates to a method and apparatus for verifying credit information on site at the door of a home contemporaneously with the delivery of an order.

In a further respect, the invention relates to a delivery and credit verification apparatus which can recognize and input an individual's credit identification information when the identification information is in any of a plurality of storage formats.

In still another respect, the invention relates to delivery apparatus which enables the cost of the order and other information to be input at the site of the delivery to prepare a record of the delivery and to prepare a receipt for the customer.

In yet a further respect, the invention relates to a portable delivery and credit verification system including a plurality of units which can transmit and receive information both over a cellular telephone line and to and from one another in the event transmission and/or reception over the cellular telephone line is prevented.

In yet still another respect, the invention relates to a portable delivery and credit verification apparatus which at the delivery site stores transaction data which can be downloaded at a site remote from the delivery site.

In a further respect, the invention relates to a portable delivery and credit verification apparatus which includes means for indicating the geographic location of the verification apparatus when the apparatus is being used during a delivery and which determines the period of time the apparatus is stationary at each delivery or other location.

In another respect, the invention relates to a portable delivery and credit verification apparatus which stores in memory data which defines the cost of deliverable goods, which data can be recalled at the point of delivery to prepare

a record and/or receipt defining the transaction which takes place or to substantiate charges to a customer.

In still a further respect, the invention relates to a portable delivery and credit verification apparatus which utilizes removable machine-readable data modules defining the cost and other data for each of a plurality of different goods deliverable to a customer.

In my U. S. Patent Nos. 5,208,446 and 5,334,824, I describe portable hand-held credit verification unit for use in the home delivery of goods. The unit permits a credit card, bank card, etc. to be verified at the door step of a customer when goods are delivered to the customer. The credit verification unit also prints a receipt for the customer. While the unit described in my prior U. S. Patents facilitates credit verification during the home delivery of goods, several problems are associated with the credit verification unit. These problems have long existed in connection with delivery of goods and in connection with components incorporated in the credit verification unit. First, the credit verification unit typically utilizes a cellular telephone line or other transmission path to communicate with a host computer. If the cellular telephone line or other transmission path is inoperative or is blocked, then a customer's credit cannot be verified. Second, the credit verification unit ordinarily employs a "swipe" credit card reader for reading the magnetic strip on a credit card or bank card. The magnetic strips on a customer's credit or bank card are often demagnetized, requiring the user to punch in the credit card number using the keyboard on the credit verification unit. Using the keyboard is time consuming and increases the likelihood of error. Third, when a delivery person utilizes the keyboard on the credit verification unit to input the customer's name, cost of goods, etc., in order to print a receipt, this is also time consuming and increases the risk of error. Fourth, the credit verification unit offers no simple way for the delivery person to confirm the cost of goods being delivered to a customer. Fifth, the credit verification unit does not permit the efficiency of the delivery person to be evaluated by providing an indication of how much time is required to make each delivery. Sixth, the credit verification unit does not permit the transactions completed by a delivery person to be readily determined. Instead, individual

receipts prepared at the place of business or at the residence of a customer must be examined. Seventh, if a delivery person can not be contacted by telephone, there is no way to determine the exact location of the delivery person in the event the delivery person has a problem or is under duress.

Accordingly, it would be highly desirable to provide an improved credit verification unit which can verify the credit of a customer in the event the cellular telephone line or other transmission path normally utilized to communicate with a host computer is inoperative.

It would also be highly desirable to provide an improved credit verification unit which can instantly accurately input a customer's credit card number in the event the magnetic strip on a customer's credit card or bank card is demagnetized.

It further would be highly desirable to provide an improved credit verification unit which instantly accurately provides a customer's name, cost of goods, etc., in order to print a receipt for the customer.

Still further, it would be highly desirable to provide an improved credit verification unit which enables a delivery person to confirm the cost of goods being delivered to a customer.

Further, it would be highly desirable to provide an improved credit verification unit which permits the efficiency of the delivery person to be evaluated by providing an indication of how much time is required to make each delivery.

Yet further, it would be highly desirable to provide an improved credit verification unit which permits the transactions completed by a delivery person to be readily determined, summarized, and audited without requiring the use of receipts prepared at the place of business or at the residence of a customer.

Further, it would be highly desirable to provide an improved credit verification unit which provides at any instant in time the exact location of the delivery person.

Therefore, it is a principal object of the invention to provide an improved method and apparatus for delivering goods to a home or business and

for, while at the door of the home or business, verifying the creditworthiness of a credit card, bank guarantee card, or other credit information provided to the delivery person by the recipient of the goods.

Another object of the invention is to provide an improved credit verification apparatus and method which can verify with a host computer the credit of a customer via at least two independent transmission/reception lines.

A further object of the invention is to provide an improved credit verification apparatus and method which can instantly accurately input a customer's credit card number from either of at least two media formats in which the credit card number is stored.

Still another object of the invention is to provide an improved credit verification apparatus and method which can instantly accurately provide a customer's name, cost of goods, etc., in order to print a receipt for the customer.

Yet a further object of the invention is to provide an improved credit verification apparatus and method which enables a delivery person to confirm, independently of the charge slip prepared at the place of business of the delivery person, the cost of goods being delivered to a customer.

Yet still another object of the invention is to provide an improved credit verification apparatus and method which indicates the length of time a delivery person spends at each delivery site.

A further object of the invention is to provide an improved credit verification apparatus and method which stores, summarizes, downloads, and/or audits the transactions completed by a delivery person.

Another object of the invention is to provide an improved credit verification apparatus and method which identifies at any moment in time the location of the delivery person.

These and other, further and more specific objects and advantages of the invention will be apparent to those skilled in the art from the following detailed description thereof, taken in conjunction with the drawings, in which:

Fig. 1 is a top view of a portable credit validation unit utilized by a delivery person in the practice of the invention;

Fig. 2 is a block diagram illustrating the components of the portable unit of Fig. 1;

Fig. 3 is a logic flow diagram illustrating one mode of operation of software which can be utilized in the unit of Fig. 1;

Fig. 4 is a block diagram illustrating a cellular telephone system utilized in the invention;

Fig. 5 is a perspective view illustrating data scanning and input apparatus utilized in the invention; and,

Fig. 6 is a side view of the apparatus of Fig. 1.

Briefly, in accordance with my invention, I provide apparatus for validating credit tendered to a delivery person when the person processes an order at a selected temporary location. The apparatus includes portable housing means carried by the delivery person; credit data entry means mounted in the housing means for entering credit information concerning the recipient; data processing means mounted in the housing means and coupled with the credit data entry means for storing the credit information; first transmission means mounted in the housing means and operatively associated with the data processing means to transmit the credit information from the portable housing means to a host computer for examination to generate validation information indicating whether the credit information is acceptable; receiver means mounted in the housing and operatively associated with the data processing means; printer means mounted in the housing and operatively associated with the data processing means; and, second transmission means operatively associated with the host computer for transmitting the validation information to the receiver means to generate validation information signals from the receiver means to the data processing means. The data processing means, when the validation information signals indicate the credit information is acceptable, activates the printer to print a receipt for the recipient to confirm that the order was delivered to the recipient and paid for by the recipient. If desired, the credit data entry means can read and electronically enter credit information directly from at least two different media formats; the first transmission means can transmit the credit information from the portable housing means to the host computer over at least two separate transmission mediums; the apparatus can

include television means carried on the housing and including a television screen for producing video images; the apparatus can include camera means mounted on the housing for producing and transmitting a video image of an individual; the apparatus can include memory means storing transaction information for ready recall when the delivery person reaches the temporary selected location; the apparatus can include readable list means identifying goods deliverable by the delivery person and the cost of each of the goods; the apparatus can include means for determining the time spent by the delivery person at the temporary selected location; the apparatus can include means for storing transaction information after the delivery person delivers goods and receives payments at the temporary selected location, and, for downloading the transaction information at a site remote from said temporary selected location; and/or, the apparatus can include means for determining the location of the delivery person and transmitting the location to a terminal remote from the delivery person.

In another embodiment of the invention, I provide a method for validating credit tendered to a delivery person when the person processes an order at a selected temporary location. The method includes the steps of traveling to a temporary location to take an order for an item from the recipient of the item and to deliver the item to the recipient; transmitting from the temporary location credit information concerning the recipient to a host computer for examination by the host computer to generate validation information signals indicating whether the credit information is acceptable; transmitting the validation information signals to the temporary location; and, printing, at the location and when the validation information signals indicate the credit information is acceptable, a receipt for the recipient to confirm that the order was delivered to and paid for by the recipient. If desired, the method can include the step of providing credit data entry means which reads the credit information from either one of at least two different media storage formats and electronically transmits said credit information; can include the step of providing transmission means which transmits the credit information from the portable housing means to the host computer over either one of at least two separate transmission mediums; can include the step of producing on a television screen at said temporary location a video image of said credit

information; can include the step of producing and transmitting from the temporary location a video image of an individual; can include the step of storing transaction information for ready recall when the delivery person reaches a site remote from said location; can include the step of reading from a reference list he cost of each of the goods in order to confirm the cost of goods to the customer; can include the step of determining the time spent by the delivery person at the temporary selected location; can include the steps of storing transaction information after the delivery person delivers goods and receives payments at the temporary selected location, and, downloading the transaction information at a site remote from said temporary selected location; and/or, can include the step of determining the location of the delivery person when he is traveling to and from the temporary selected location.

Turning now to the drawings, which depict the presently preferred embodiments of the invention for the purpose of illustrating the practice thereof and not by way of limitation of the scope of the invention and in which like reference characters represent corresponding elements throughout the several views, Fig. 1 illustrates a portable credit validation unit constructed in accordance with the principles of the invention and generally identified by reference character 10. Unit 10 includes a hollow rectangular housing 19. Mounted in housing 19 are a transmitting/receiving antenna 50, printer 12, LCD screen 13, magnetic credit card reader 54, data entry keyboard 53, fiber optic data wand input/output port 16, rechargeable battery pack 17, and socket 18 for recharging battery pack 17. A microprocessor or other data processing means is also carried in housing 19 and is operatively associated with antenna 50, printer 12, screen 13, credit card reader 54, keyboard 53, and port 16. A detachable card 40 includes bar codes 41, 42, 43 which indicate the cost of a medium size pizza, of a large pizza, and of each condiment put on a pizza, respectively. Alphanumeric laser pen or other sensing means 14 is removably affixed to housing 19 by clip 11. Alphanumeric laser pen or other sensing means 90 is fixedly secured to housing 19. Laser pens 14, 90 are of the general type utilized in libraries to check out books by scanning bar codes and utilized in grocery stores to scan bar codes on items of merchandise stocked and purchased at the store. Pens 14, 90 each contains their own CPU, batteries, memory and laser beam unit. If desired, pen 14 can be connected to a power

source in unit 10 and/or to the control 51 or memory 52 via a cord indicated by dashed lines 15 in Fig. 1. When pen 14 is placed in inkwell 44 in the manner indicated in Fig. 5, beam 46 is directed into recovery unit 47. Unit 47 is connected to control unit 51 and memory 52 by cable 48 in Fig. 5. Control unit 51 causes unit 47 to send signals over beam 46 which directs the CPU inside pen 14 to off-load data through beam 46 to recovery unit 47 and memory 52. When pen 90 is inserted in a supplemental inkwell which is comparable to inkwell 44 but is not located in housing 19, then a control unit/memory operatively associated with the supplemental inkwell causes a unit in the inkwell to send signals over a supplemental beam (comparable to beam 46) which is directed to the CPU inside pen 90 to off-load data through the supplemental beam and inkwell into the control unit/memory operatively associated with the supplemental inkwell. Normally only a single pen 14, 90 is provided with each unit 10, but two or more laser pens or other sensors can, if desired, be included in unit 10.

In the embodiment of the invention illustrated in Figs. 1 and 6, unit 10 is held by a delivery person in a manner similar to that of a gun. The delivery person grasps handle 82 with his hand, points laser pen 90 at a credit card, card 40, or other desired target, and depresses spring-loaded trigger 83 in the direction of arrow B. When trigger 83 is depressed, laser pen or sensor 90 is activated and can read a bar code, the magnetic strip on a credit card, the raised numbers on a credit card, the memory of a microprocessor in a card, and/or any other designated media for storing customer credit information or other information concerning the customer or the delivery. When trigger 83 is released, it moves in the direction of arrow A to automatically return to the normal operative position shown in Fig. 6. When button 83 is in the position shown in Fig. 6, pen 90 can not read a bar code or other desired media. If desired, button 83 can include a releasable lock so that pen 90 can be "on" and used for extended periods of time without requiring the delivery person to depress button 83. Or, other means can be provided to permit pen 90 (or 14) to be on continuously. It is, however, presently preferred to only use pens 14, 90 intermittently to conserve electrical batteries.

Pen 14, 90 can each, if desired, include multiple sensors each of

which detects data stored in a different media format or can include a sensor which can detect data stored in a plurality of media formats. By way of example, and not limitation, one media storage format for data is a bar code imprinted or formed on a card or other object. Another media storage format for data is the magnetic strip found on the back of credit and bank cards. A further media storage format is the raised number format found on credit cards, i.e., the credit card number is raised on the face of the credit card to facilitate using the card to make an impression on a carbon credit card slip using the well known "swipe" credit card imprinting apparatus. Still a further media storage format for data is alphanumeric characters printed on and flush (i.e., not raised) with the face of a credit card or on another device. Yet another media storage format for data comprises digitizing the data and storing it in a computer silicon chip mounted on a credit card or other device. Consequently, pen 14, 90 can include one sensor which can read a bar code and input and store data embodied in the bar code. The pen 14, 90 can include a second sensor which contacts and can be slid over the magnetic strip on the back of a credit card to read and store the data in the magnetic strip. Another sensor in pen 14, 90 can be adapted to receive digitized data stored in a microprocessor mounted on a credit card. In another embodiment of the invention a single sensor or sensor system is mounted in pen 14, 90 or in any other desired structure in, on, or operatively associated with unit 10 to read data embodied in either of two or more media storage formats.

Fig. 2 illustrates the interrelationship between the various components of unit 10. The microprocessor in unit 10 includes a memory 52 and control 51. The keyboard or other data entry system 53 is used to program the microprocessor or input card account numbers, bank card account numbers, or other credit information to be validated by the system of the invention. Magnetic credit card sensor 54 can also be used to enter credit card or bank card account numbers into memory 52 as credit card information 58. Data inputted by system 53 and/or pen 14, 90 is stored in memory 52 as legal tender or programming information 57 or transaction information 58. Transaction information can include credit card information, time of day from clock 49, can include location information from the Global Positioning System (GPS), or can include any other

desired information. When credit card information (or location information, or information indicating the time the delivery person was at a given location, etc.) including the card number, expiration date, cardholder name, etc. is entered into memory 52 by sensor 54 and the user wishes to validate the credit card number, the user presses a selected button on keyboard 53 or otherwise prompts controller 51 to generate and transmit signals 59 to transmitter--receiver 50. Signals 59 include the credit card information. Transmitter 50 transmits 60 the signals 59 to the cellular telephone network of Fig. 4, to a satellite, to a microwave antenna, to another unit 10, or to another selected communications network. Unit 10 preferably includes means for transmitting over at least two separate communications networks or systems. Consequently, if unit 10 can transmit and receive data over both a cellular telephone line and a microwave system, this permits unit 10 to utilize the microwave system if the cellular system is not operative. Or, if unit 10 can transmit and receive with other units 10, then a delivery person who cannot clear an order over a cellular line may transmit transaction data concerning the order to a unit 10 in the possession of a second delivery person so that the second delivery person can attempt to use a cellular telephone line to validate the credit information contained in the transaction data. The transaction data concerning two or more deliveries or credit checks can be transmitted together as a single "package" over cellular telephone lines, over a microwave network, etc.

The cellular telephone network of Fig. 4 receives and transmits signals 59 to a host computer 102 which validates the credit card information and other data associated with the credit card. Computer 102 then generates validation signals which are transmitted 11 through the cellular telephone network, back to the cellular telephone and back 56 to the transmitter-receiver 50. The validation signals are transmitted 80 from transmitter 50 to control 51. If the validation signals 80 indicate that the credit card information is acceptable, control 51 directs the words "AUTHORIZATION RECEIVED" to appear on screen 13 and also directs printer 12 to print a paper strip receipt. The receipt indicates the credit card, bank card or other legal tender used to pay for the delivery; the credit card authorization number, if appropriate; the total cost of the order; and, when the

printed strip includes two pieces of paper (one for the customer and one for the delivery person), can include a signature line for the customer in the event the customer is paying with a credit card. During a delivery (usually at the door of the customer), the credit card number, the credit card authorization number, total cost of the order, and other desired transaction information can be stored in memory 52 for recall by control unit 51 for downloading at a site remote from the delivery site. Such transaction information can be downloaded into pen 14 or by any other desired means well known in the art. The storage in memory 52 of information concerning each transaction undertaken (completed or not) by a delivery person and the subsequent downloading of such transaction information into a computer or other means such that the transaction information can be analyzed and audited, provides a means for evaluating the work performed by the delivery person.

As indicated by modem 36 and computer 38 in Fig. 4, not all information transmitted by unit 10 is directed to a host computer 102 for purposes of credit verification. Some of the information transmitted by unit 10 may be directed 30 to the receiver 31 (Fig. 1) of another computer 38. For example, information identifying the location of the delivery person may be transmitted to a computer 38 or other reception unit at the place of business of the delivery person, as may selected transaction information or information concerning the time spent in route to a delivery and at a delivery. Since unit 10 includes a clock 49, the time that the delivery person leaves the place of business is determined by depressing an appropriate designated button or buttons on keyboard 53 or by any other desired means. Control unit 51 stores this departure time in memory 52. When the delivery person arrives at the delivery site and begin utilizing unit 10 to process the order and give a receipt to the customer, control unit 51 stores this time in memory as the arrival time and utilizes the arrival time and departure time to calculate the time required for the delivery person to travel to the delivery location. When unit 10 prints a receipt, control unit identifies this time as the conclusion time and utilizes this time and the arrival time to calculate how long the delivery person was on site making the delivery. When the delivery person returns to his place of business or goes to the next delivery, the control unit 51 utilizes the

arrival time at the next delivery or at the place of business to determine the delivery person's time in transit.

If the validation signals 80 indicate that the credit card information is not validated and is not acceptable, control 51 directs the word "DECLINED" to appear on screen 13 and does not direct printer 12 to print a receipt.

Fig. 3 is a block flow diagram which illustrates a typical program or logic function which is executed by the controller for validating a credit card number or other credit information which is provided to a delivery person by the recipient of the order delivered by the delivery person. The basic control program 61 consists of commands to "start and initialize" 62, "read memory" 63 and "transfer control" 64 to the validation determination sub-routine 67.

The validation determination sub-routine 67 includes a command to "interpret memory" 68 (i.e., determine if there is a credit card or other information in memory which must be validated). If "validation is not required" 69 then the 14. "return to control program" 71 program step exits the sub-routine 67. If "validation is required" 70 of a credit information, then "transmit credit information" step 72 causes control 51 to transmit information 59 to transmitter 50 and to direct transmitter 50 to transmit credit information signals 60 by radio wave or other airborne electromagnetic radiation to the cellular telephone in the delivery person's delivery vehicle. The cellular 130 telephone receives the transmitted signals 60, autodials, and sends the credit information contained in the signals 60 over a cellular telephone line in the manner illustrated in Fig. 4. If desired, the information in signals 60 can be transmitted to a microwave station instead of telephone 130 and can then be transmitted into a telephone or other communication system for transmission to a host computer. Or the information in signals 60 can be transmitted to a satellite or any other communication system to a host computer. After the host computer 102 in the cellular telephone system of Fig. 4 validates the credit card information, the validated information signals are transmitted back through the cellular telephone system to the cellular telephone in the vehicle of the delivery person. The cellular telephone in the vehicle includes a transmitter which transmits via the air validation information signals 56 to transmitter-receiver 50. Or, the host computer sends the validated information

signals through some other desired communication system to the transmitter-receiver 50. When the controller "receives validation data" 74 and the validation data confirms that the credit card or other tender is "not valid" 75, then the "return to control program" step 79 exits the validation determination routine. As earlier noted, if the validation data reviewed by controller 51 indicates that the credit information is not acceptable, then controller 51 can also direct screen 31 to display "DECLINED". If the validation data reviewed by controller 51 indicates that the credit card or other tender is "valid" 76, then the command "print receipt" 78 causes printer 12 to print a receipt for the recipient of the order. The receipt can include the total cost of the order, the credit card or bank card number used to pay for or confirm the order, the date, and a space for the recipient of the order to sign in the event the recipient is paying with a credit card. The "print receipt" command 78 is followed by "return to control program" 79. The control program 61 and the validation determination sub-routine are repeated as indicated by the "repeat to last memory" step 65 of the control program 61 followed by an "end" program step 66 which completes execution of the program.

Fig. 4 illustrates a cellular system which, in simplified form, includes base site equipment for a plurality of geographical radio frequency (RF) coverage areas (cells), including cell 110. For cell 110, the base site equipment 115 includes a set of base transceivers 114 and a base site controller 116.

Radio telephone unit 130 is normally carried in a vehicle and is operatively associated with computer 100 and modem 101. A facsimile machine (fax) or other similar machine which inputs data to a modem 101 or its functional equivalent for transmission by unit 130 can be substituted for computer 100.

Overall control of the base site equipment 115 is provided by a signal processing unit 121 of a cellular switch controller 122. The switch controller 122 also includes a digital switching network 123 for controlling the call switching operation between a public switched telephone network (PSTN) and the base site equipment 115. A set of pulse coded modulation (PCM) converters 125 are included in the cellular switch controller 122 as an interface to the PSTN 131. The PSTN communicates with a modem 103 and host computer 102 which receives telecomputer data originally generated by computer 100 and transmitted

by unit 130. The host computer 102 includes databases and programming which are utilized to examine and validate credit information transmitted through the cellular telephone system from antenna 143 to computer 102. Signals from antenna 143 are received by antenna 99 and vice-versa.

In use, a delivery person is given an order to be delivered to a recipient at a selected home, business or other residence; or, the delivery person goes to a swap meet or other temporary location to receive and process orders. The vehicle utilized by the delivery person can include a cellular telephone. When the delivery person departs to make his delivery, a keyboard 53 button is depressed to notify unit 51 of the departure time. Unit 51 queries clock 49 to determine the departure time.

While the delivery person is in route (or is at or returning from a delivery), control unit 51 transmits signals to GPS 32 to permit GPS 32 to determine the geographical location of the delivery person and transmit 34 such location back to a transmitter--receiver 31 at the place of business of the delivery person or at another desired location. Transmitter--receive 31 can include a memory, screen, printer, and other means for storing and displaying information transmitted 30 from a unit 10 or GPS 32. If desired, unit 10 can include a self-contained unit which can determine the geographical location of the delivery person, or unit 10 can be used in conjunction with any other apparatus to determine the geographical location of the delivery person and to input periodically and continuously the geographical location into memory 52 and, if desired, to transmit 30 the geographical location of the delivery person continuously or at selected time intervals to the delivery's person place of business or to another desired location.

When the delivery person arrives at the residence, he leaves his vehicle and takes the order to the door of the residence. When a business is the residence, more than one door often can be utilized by the delivery person. If, instead, the delivery person arrives at a temporary order--processing location to take orders, he leaves his vehicle (or stays in the vehicle) to take and process orders. At the door (or at the temporary order--processing location) the delivery person receives a credit card or bank guarantee card (for a check written by the

recipient of the order). The delivery person uses keyboard 53, pen 14, pen 90, or card reader 54 to input the recipient's credit information into unit 10. When pen 90 is utilized, handle 82 is grasped and pen 90 is pointed at and/or placed adjacent the credit card, bank card, or other credit object provided to the delivery person by the customer. Button 83 is depressed in the direction of arrow B to activate pen 90 and is released in the direction of arrow A once the necessary credit data is input. If pen 90 includes a sensor which can be slid over a magnetic strip to detect credit information embodied or stored in the magnetic strip, then button 83 is depressed, handle 82 is grasped and unit 10 is turned such that the sensor in the distal end or nose of pen 90 is slid over the magnetic strip to read the credit information into pen 90, after which button 83 is released.

Laser pens 14, 90 can also be utilized to input cash from a bank card including a microprocessor into which a certain amount of cash, say $200.00, has been loaded to be "spent" by the holder of the card. Once credit information is input using keyboard 53, pens 14 and/or 90, and/or credit card reader 54, the delivery person presses a button or buttons on keyboard 53 or otherwise prompts controller 51 to transmit the credit information via transmitter 50 and the cellular telephone system or other communication network or system to host computer 102 for validation. After host computer 102 examines the credit information, it prepares validation information which is transmitted back through the cellular telephone system or some other communication system or network to transmitter-receiver 50. Validation information signals 80 from transmitter-receiver 50 are analyzed by controller 51. If the validation information signals 80 indicate that the recipient's credit information is acceptable, then printer 12 produces a receipt for the recipient, screen 13 displays "AUTHORIZATION RECEIVED", the delivery person has the recipient sign the receipt (in the event the recipient paid with a credit card), and the delivery person gives the item ordered to the recipient. When the printer produces a receipt, or when the delivery person presses a keyboard button or otherwise informs control unit 51 that the delivery transaction is concluded, unit 51 stores in memory 52 recallable transaction data defining the transaction. The transaction data can include, if desired, the customer's name, cost of the order, the date, the goods delivered, the credit card number, whether

cash was tendered by the customer, the times the delivery person arrived at and left the customer's business, home or other residence, the customer's address, etc. The transaction data can be loaded into pen 14 and downloaded into a computer at the delivery's person place of business or at any other desired location. The credit information input by pen 14 or 90 or card reader 54 can consist of cash tendered from a "bank card". Such a bank card includes a microprocessor which is "loaded" with an account which includes a selected amount of cash that can be used by the holder of the card to purchase goods. The pen 14 or card reader 54 can, as is well known in the art, be programmed to withdraw a select amount of cash from the card. The cash withdrawn is deposited in an account computer file in unit 10 and later downloaded to an account in a bank or other financial institution or at another desired location. Or, instead of depositing the cash in a account in unit 10, the cash is transmitted by controller 51 over transmitter 50 and deposited in an account in a host computer in a bank or other location. The bank receiving the cash deposit can, if desired, transmit deposit verification data over a communication system back to transmitter-receiver 50 and into memory 52. Controller 51 can also, if desired, direct printer 12 to prepare a receipt for the customer, which receipt would include some or all of the deposit verification data from the bank.

If the validation information signals 80 indicate that the recipient's credit information is not acceptable, the screen 13 displays "DECLINED" and the recipient can give the delivery person other tender to pay for the order.

After the order is paid for and delivered, the delivery person carries unit 10 back to his vehicle and drives the vehicle back to his place of business or to the next delivery location.

If during a delivery, the customer asks the delivery person to justify the bill, the delivery person either can utilize keyboard 53 to call up the goods delivered and associated cost from memory 52, or can determine the cost of the goods from the bar code data on card 40. For example, if the customer ordered a large cheese pizza with pepperoni, the delivery person can type in the code (for example, the number 50) for a pepperoni pizza, after which

"PEPPERONI-LARGE: $10.50 +tax"

is displayed on screen 13 for the customer to view.

Another way a delivery person can verify a receipt--or prepare an original receipt--during a delivery is to utilize pen 14 or 90 (or another sensor means) to read the bar code information (or data provided in another storage format) provided on card 40. If the customer ordered a medium pizza with pepperoni and sausage, then the delivery person use pen 14 or 90 to read bar code 41 once to input the price of a medium cheese pizza, and then uses pen 14 or 90 to read bar code 43 twice to input the cost of two toppings on the cheese pizza. The delivery person can then depress a designated button on keyboard 53 which totals the order and can then--after the customer's name, credit card number, or other additional information is entered--depress another designated button to cause unit 10 to dispense a receipt for the customer. The number of bar codes or other data storage packets on card 40 or on or in some storage means besides card 40 can be varied as desired. The data storage packets can be stored on or in unit 10 or on or in some storage means operatively associated with unit 10. By way of example and not limitation, cost and other retrievable information concerning goods delivered to a customer can be stored on paper tape, on magnetic tape, in a fiber optic accessible device, in microprocessors, etc. mounted on or in or utilized in conjunction with unit 10.

If desired, a small video or television screen 84 can be mounted in housing 19 along with the means necessary to receive an airborne television or video signal traveling toward housing 19 and necessary to process the received video signal and display it on the video screen. In addition, a small camera can be mounted on the housing to view the user or a customer, and to generate a video signal which can be transmitted from unit 10 to a remote television screen for viewing by a credit verification personnel or by any other selected individual or company. Further, a portable cellular telephone or other portable telephone can be mounted on or integrated in housing 19 to receive and make calls through cellular telephone networks, through microwave antennas, through a satellite, or through any other desired auxiliary telephone equipment operatively associated with the portable telephone carried in housing 19. Means for receiving and deciphering an encrypted signal, and for encrypting and transmitting a signal may

also be incorporated in housing 19.

In one embodiment of the invention, the host computer 102 or other selected data bank transmits to unit 10 the photograph of the owner of the credit card being used by the customer. This photograph appears on screen 84 and permits the delivery person to compare the photograph on screen 84 with the customer or with a photograph of the customer which is on the credit card, bank card, or other credit object being presented to the delivery person by the customer.

In another embodiment of the invention, sensor 14, 90 or some other sensor operatively associated with unit 10 can perform a laser scan of the eyes of the customer to identify the customer. The results of this on-site laser scan are compared with data forwarded to unit 10 by the host computer 102 or other selected data bank, or, the results of the on-site laser scan of the customer's eyes is transmitted by unit 10 to the host computer 102 or other data bank so the results of the on-site laser scan can be compared with identification reference data on the customer which is stored in host computer 102 or in the other data bank. The host computer 102 stores the laser scan results for each or at least some of credit card holders stored in the memory banks of the host computer. The results of the comparison of the on-site laser scan with the identification reference data are displayed on the screen 13 of unit 10 or are displayed by any other desired means.

In a further embodiment of the invention, sensor 14, 90 or some other sensor operatively associated with unit 10 can read the fingerprint(s) of a customer to identify the customer. The results of this on-site fingerprint read are compared with data forwarded to unit 10 by the host computer 102 or other selected data bank, or, the results of the on-site fingerprint read are transmitted by unit 10 to the host computer 102 or other data bank so the results of the on-site fingerprint read can be compared with identification reference data on the customer which is stored in host computer 102 or in the other data bank. The results of the comparison of the on-site fingerprint read with the identification reference data are displayed on the screen 13 of unit 10 or are displayed by any other desired means.

In a still another embodiment of the invention, sensor 14, 90 or some other sensor operatively associated with unit 10 can determine the genetic DNA or other genetic "fingerprint" of a customer, or can read some other

identification data in or on the customer to identify the customer. The results of this on-site DNA genetic determination are compared with data forwarded to unit 10 by the host computer 102 or other selected data bank, or, the results of the on-site DNA genetic determination are transmitted by unit 10 to the host computer 102 or other data bank so the results of the on-site DNA genetic determination can be compared with identification reference data on the customer which is stored in host computer 102 or in the other data bank. The results of the comparison of the on-site DNA genetic determination with the identification reference data are displayed on the screen 13 of unit 10 or are displayed by any other desired means.

The customer's fingerprint, laser eye scan, DNA genetic determination, etc. are termed personal identification data. Personal identification data is distinguished from credit information like a credit card or bank account number, address, age, name, etc. Personal identification data is data which is obtained from or provided by the physical body of a customer and which is used to confirm the identity of that customer.

When GPS 32 or another system (which may or may not be incorporated in unit 10) determines the location of unit 10 and transmits such information into memory 52, control unit 51 can cause the location to be displayed on screen 13 and/or 84 when the delivery person presses an appropriate button on keyboard 53 or otherwise prompts control 51.

The delivery person can use pen 14 to download credit or other information into an inkwell 44 and memory which is located in a second unit 10 in the possession of another delivery person. Similarily, as earlier described, the delivery person can direct control unit 51 to transmit credit or other information into the memory of a second unit 10 in the possession of another delivery person. The control unit 51 in the second unit 10 can then recall the credit information or other information from the memory in the second unit and display the recalled information or screen 13 or downlead the recalled information into a third control unit or into any other desired storage means.

Having described my invention and the presently preferred embodiments thereof in such terms as to enable those skilled in the art to understand and practice it, I Claim:

CLAIMS

1. Apparatus for validating credit tendered to a delivery person when the delivery person processes an order at a selected temporary location, said apparatus including

(a) portable housing means carried by the delivery person;

(b) credit data entry means mounted in said housing means for entering credit information concerning the recipient;

(c) data processing means mounted in said housing means and coupled with said credit data entry means for storing said credit information;

(d) first transmission means mounted in said housing means and operatively associated with said data processing means to transmit said credit information from said portable housing means to host computer means for examination to generate validation information indicating whether said credit information is acceptable;

(e) receiver means mounted in said housing and operatively associated with said data processing means;

fr) second transmission means operatively associated with said host computer means for transmitting said validation information to said receiver means to generate validation information signals from said receiver means to said data processing means, said data processing means, when said validation information signals indicate said credit information is acceptable.

2. The apparatus of Claim 1 wherein said credit data entry means is electronically able to read and enter credit information directly from at least two different media formats.

3. The apparatus of Claim 1 wherein said first transmission means can transmit said credit information from said portable housing means to said host computer means over at least two separate communications networks.

4. The apparatus of Claim 1 including television means carried on said

housing and including a television screen for producing a video image of the owner of said credit information, said video image being transmitted to said apparatus by said host computer.

5. The apparatus of Claim 1 including means for examining the person of the recipient to generate personal identification data and for causing the comparison of said personal identification data with reference identification data stored in said host computer means.

6. The apparatus of Claim 1 including memory means storing transaction information for ready recall when the delivery person reaches the temporary selected location.

7. The apparatus of Claim 1 including readable list means identifying goods deliverable by the delivery person and the cost of each of the goods.

8. The apparatus of Claim 1 including means for determining the time spent by the delivery person at the temporary selected location.

9. The apparatus of Claim 1 including means for

(a) storing transaction information after the delivery person delivers goods and receives payments at the temporary selected location; and,

(b) downloading said transaction information at a site remote from said temporary selected location.

10. The apparatus of Claim 1 including means for determining the location of the delivery person and transmitting the location to a terminal remote from the delivery person.

11. A method for validating credit tendered to a delivery person when the person processes an order at a selected temporary location, said method including the steps of

(a) traveling to a temporary location to take an order for an item from the recipient of the item and to deliver the item to the recipient;

(b) transmitting from said temporary location credit information concerning the recipient to a host computer for examination by the host computer to generate validation information

signals indicating whether said credit information is acceptable; and,

(c) transmitting said validation information signals to said temporary location.

12. The method of Claim 11 including in step (b) providing credit data entry means which reads said credit information from either one of at least two different media storage formats and electronically transmits said credit information.

13. The method of Claim 11 including in step (b) providing transmission means which transmits said credit information from said portable housing means to said host computer over either one of at least two separate communications networks.

14. The method of Claim 11 including in step (c) transmitting to said temporary location a video image of the owner of said credit information.

15. The method of Claim 11 wherein in step (b) said credit information includes personal identification data.

14. The method of Claim 11 including the additional step (d) of producing on a television screen at said temporary location a video image of said credit information.

15. The method of Claim 11 including the additional step (d) of producing and transmitting from said temporary location a video image of an individual.

16. The method of Claim 11 including the additional step prior to step (a) of storing transaction information for ready recall when the delivery person reaches a site remote from said location.

17. The method Claim 11 including in step (a) reading from a list means identifying goods and the cost of each of the goods in order to confirm the cost of goods to the customer.

18. The method of Claim 11 including the additional step (d) of determining the time spent by the delivery person at the temporary selected location.

19. The method of Claim 11 including the additional steps:

(e) storing transaction information after the delivery person delivers goods and receives payments at the temporary selected location; and,

(f) downloading said transaction information at a site remote from said temporary selected location.

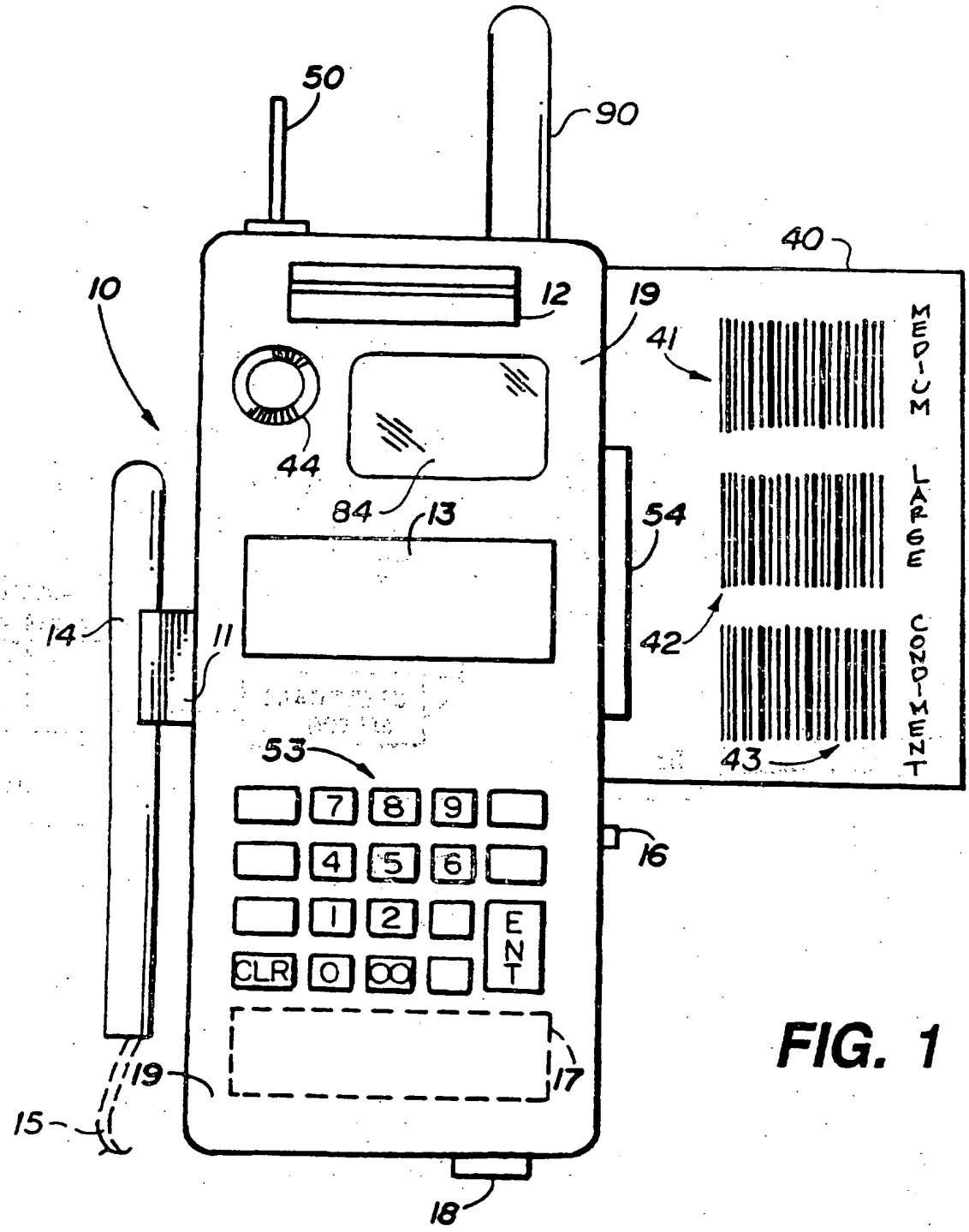
20. The method of Claim 11 including the additional step (d) of determining the location of the delivery person when he is traveling to and from said temporary selected location.

21. The method of Claim 11 including in step (b) prior to said transmitting of said credit information the steps of

(i) obtaining from the recipient a media format including said credit information; and,

(ii) electronically reading said credit information included in said media format.

22. The apparatus of Claim 1 including means for electronically reading said credit information from a selected media format while said media format is stationary.


50
90
40
10
12
19
41
MEDIUM
44
84
13
54
LARGE
14
11
42
CONDIMENT
43
53
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8
9
4
5
6
16
1
2
ENT
CLR
0
19
17
15
18

FIG. 1

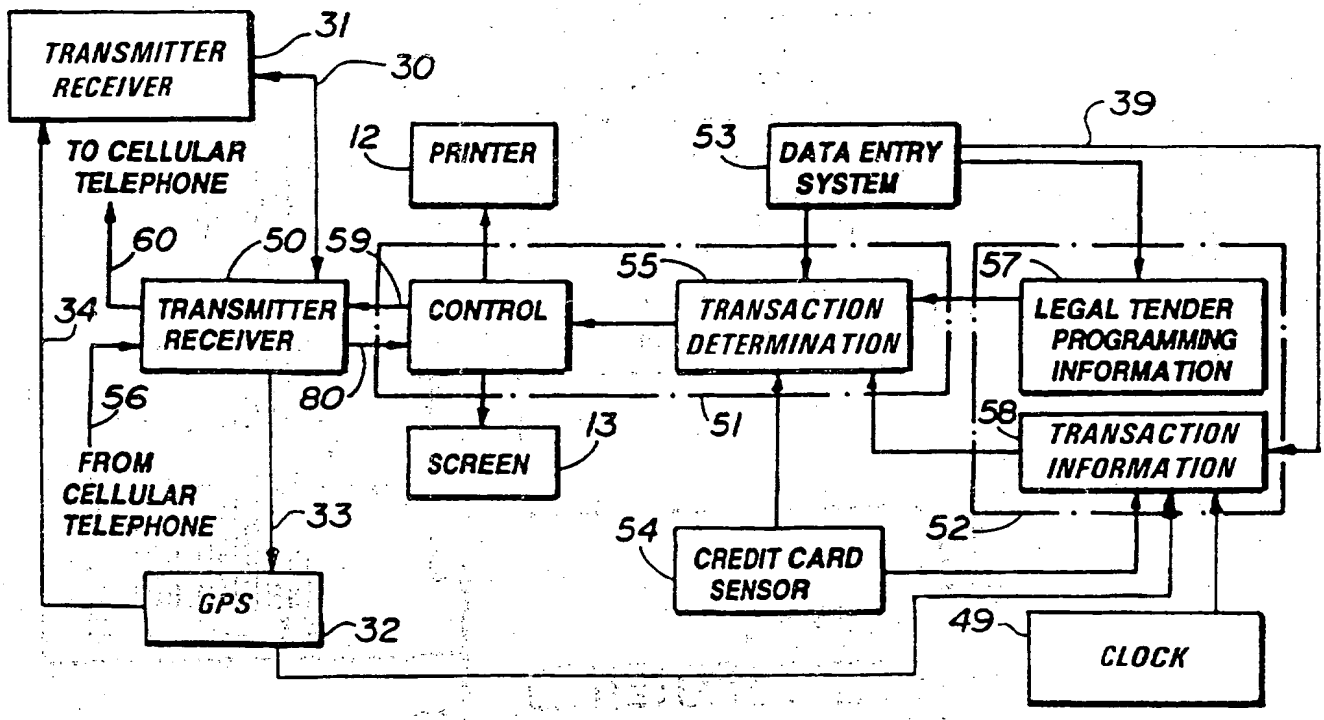
TRANSMITTER RECEIVER
31
30
TO CELLULAR TELEPHONE
12
PRINTER
53
DATA ENTRY SYSTEM
39
60
50
59
55
57
34
TRANSMITTER RECEIVER
CONTROL
TRANSACTION DETERMINATION
LEGAL TENDER PROGRAMMING INFORMATION
56
80
58
TRANSACTION INFORMATION
FROM CELLULAR TELEPHONE
SCREEN
13
51
33
54
52
CREDIT CARD SENSOR
GPS
32
49
CLOCK

FIG. 2

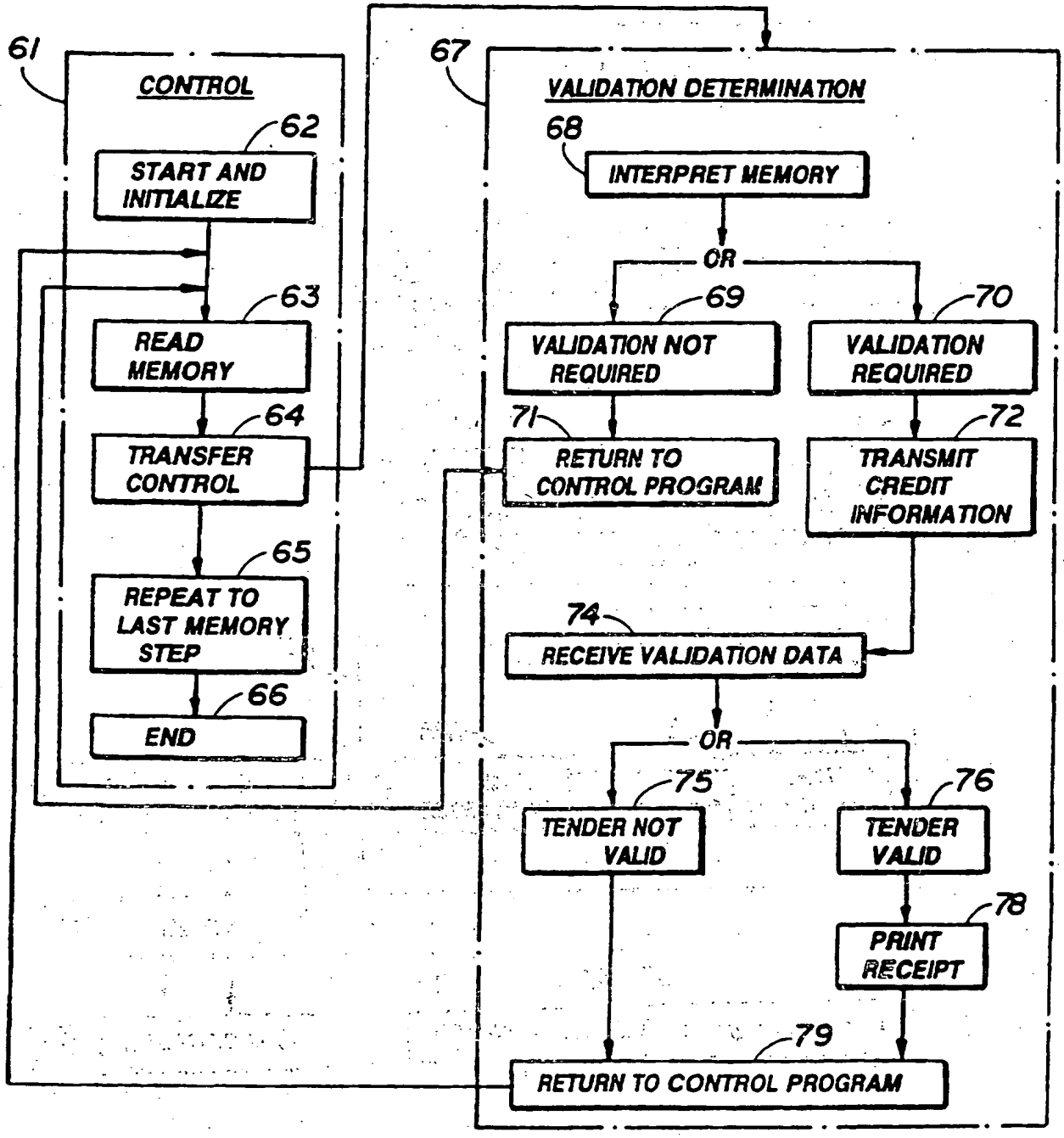
61
CONTROL
62
START AND INITIALIZE
63
READ MEMORY
64
TRANSFER CONTROL
65
REPEAT TO LAST MEMORY STEP
66
END
67
VALIDATION DETERMINATION
68
INTERPRET MEMORY
OR
69
VALIDATION NOT REQUIRED
70
VALIDATION REQUIRED
71
RETURN TO CONTROL PROGRAM
72
TRANSMIT CREDIT INFORMATION
74
RECEIVE VALIDATION DATA
OR
75
TENDER NOT VALID
76
TENDER VALID
78
PRINT RECEIPT
79
RETURN TO CONTROL PROGRAM

FIG. 3

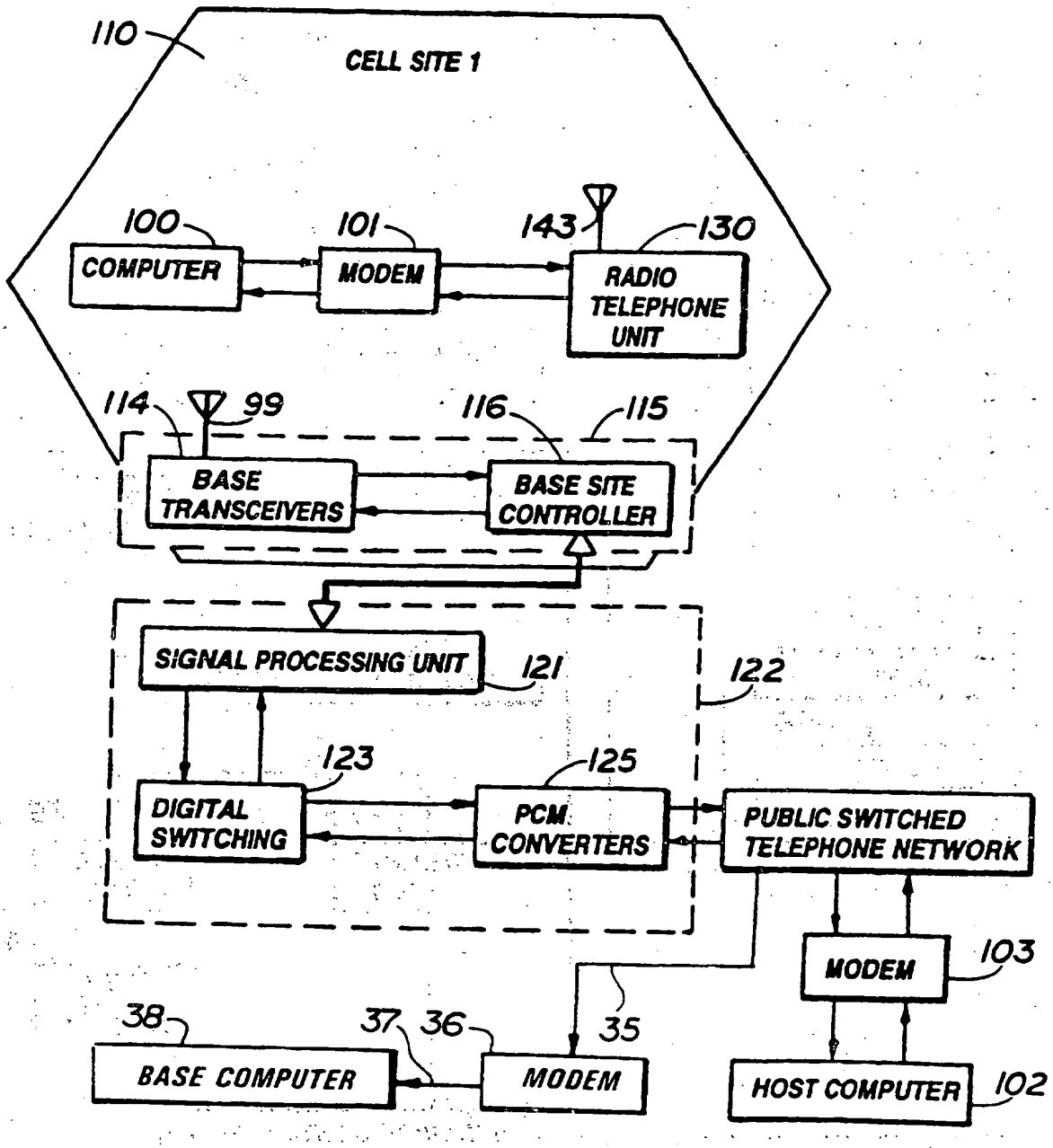
110
CELL SITE 1
100
COMPUTER
101
MODEM
143
130
RADIO TELEPHONE UNIT
114
99
116
115
BASE TRANSCEIVERS
BASE SITE CONTROLLER
SIGNAL PROCESSING UNIT
121
122
123
125
DIGITAL SWITCHING
PCM CONVERTERS
PUBLIC SWITCHED TELEPHONE NETWORK
MODEM
103
38
37
36
35
BASE COMPUTER
MODEM
HOST COMPUTER
102

FIG. 4

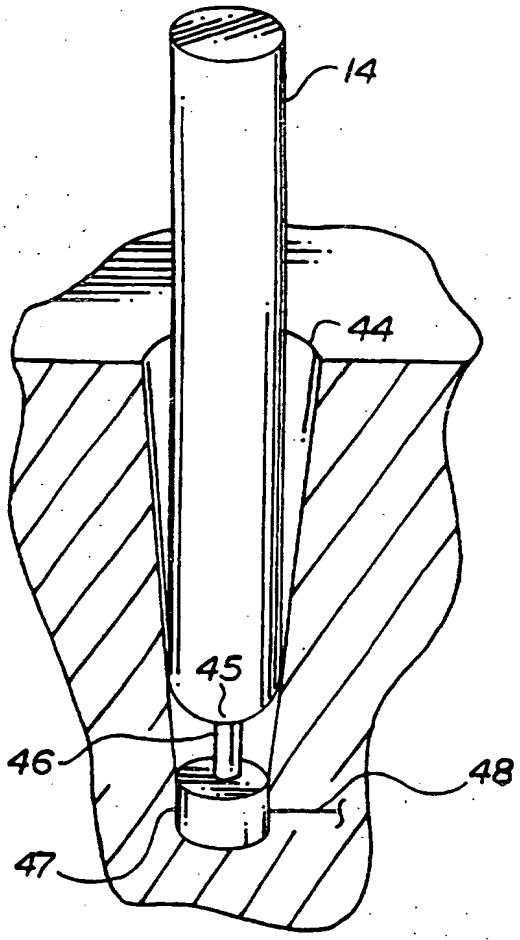

FIG. 5

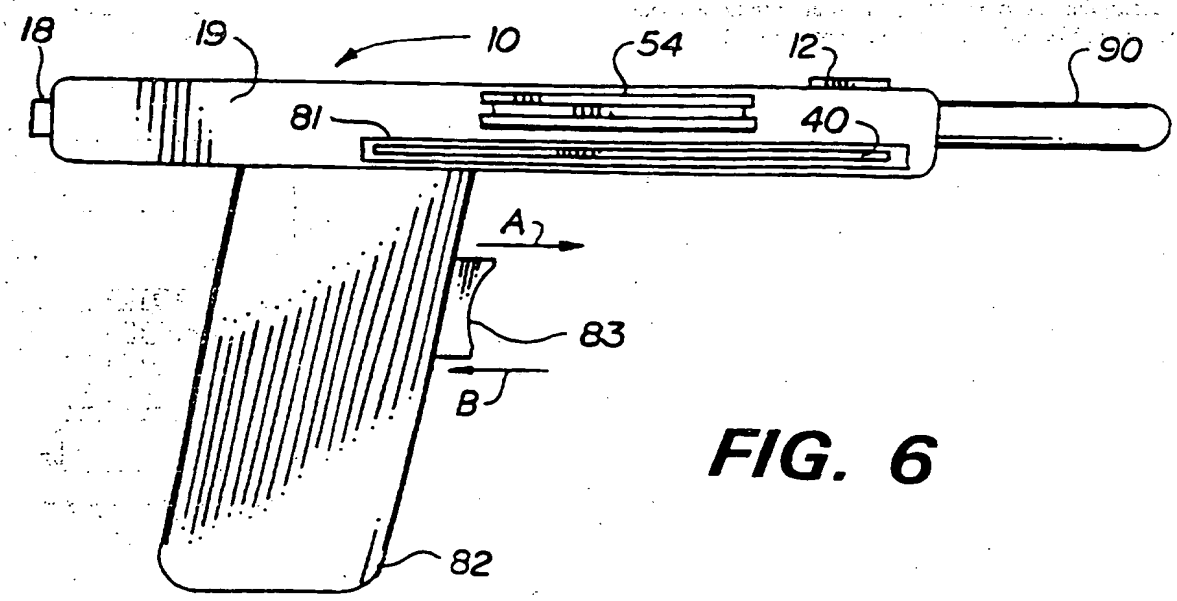

FIG. 6

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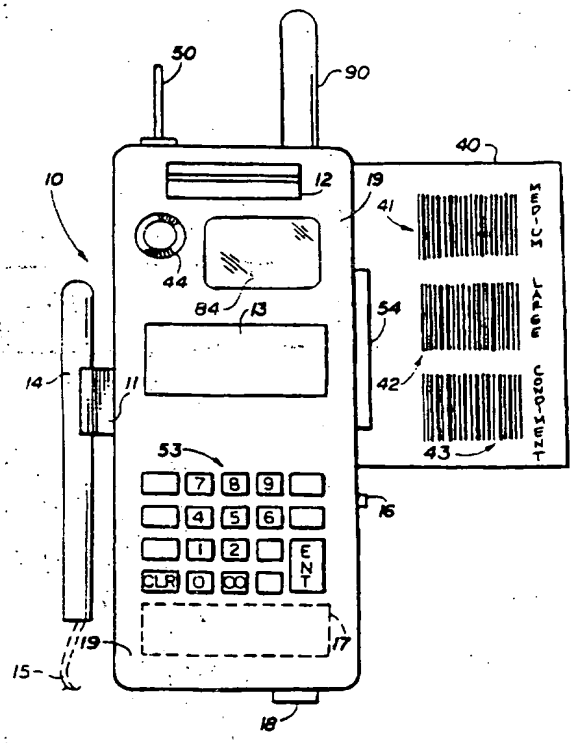
(57) Abstract

A method and apparatus (10) for delivering an order to a home and utilizing credit information to verify and accept payment for the order. The method and apparatus verify credit information on site at the door of a home contemporaneously with delivery of an order. The apparatus (10) includes a hollow rectangular housing (19), a transmitting/receiving antenna (50), and magnetic credit reader (54).



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PCT/US97/06312

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US CL :395/241

According to International Patent Classification (IPC) or to both national classification and IPC

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

MAYA, APS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 5,334,824 A (MARTINEZ) 02 August 1994, see claim 1, col. 5, line 44 to col. 6, line 2.	1,4-5,11,14-15 ---------- 2-3,10,12-13,20
A	US 5,489,773 A (KUMAR) 06 February 1996, see entire document.	1-22
A	US 5,408,513 A (BUSCH, JR. ET AL.) 18 April 1995, see entire document.	1-22
Y,P	US 5,576,716 A (SADLER) 19 November 1996, see col. 1, lines 19-26.	10,20
A,E	US 5,646,629 A (LOOMIS et al.) 08 July 1997, see col. 4, lines 60-65.	10,20

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US97/06312

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y,P	US 5,590,038 A (PITRODA) 31 December 1996, see col. 5, lines 14-43.	2,3,12,13
A	US 4,295,039 A (STUCKERT) 31 October 1981, col. 1, line 62 to col. 2, line 3.	5,15